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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/275,766	03/25/1999	JOHN CHRISTIAN HERMANSEN	20837-007	1175

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EXAMINER	
HWANG, JOON H	
ART UNIT	**PAPER NUMBER**
2172	

DATE MAILED: 01/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/275,766	Applicant(s) HERMANSEN ET AL.	
	Examiner Joon H. Hwang	Art Unit 2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 March 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicants newly added claim 19 in the amendment received on 10/31/2001.

The objection to the specification is withdrawn.

The pending claims are 1-19.

Drawings

2. The drawings are objected to because words in box of 106, 102, 104, 108, and 112 in fig. 1 can't be recognized. Correction is required.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "an output 114" in line 6 on page 10 is not shown in the figure 1. Correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 7, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley et al. (U.S. Patent No. 5,212,730).

With respect to claims 7 and 13-14, Wheatley discloses a database (abstract and fig. 1) containing records including phonetic representations of names (HMM recognition

model database, lines 3-68 in col. 4) for matching a proper input name, which is inputted as a string of characters (lines 23-25 and line 15 in col. 2 and lines 29-34 in col. 8). Wheatley discloses generating a phonetic feature sequence (lines 21-25 in co. 4), which is equivalent to at least a portion of the input proper name. Further, Wheatley discloses generating an input name to speech signal (lines 29-41 in col. 8). The speech signal teaches a phonetic representation of the input name. Thus, Wheatley discloses generating a phonetic representation of the input name. Wheatley discloses comparing the input proper name and phonetic feature representations (lines 44-47 in col. 8, lines 30-38 in col. 2, and lines 16-20 in col. 10) and eliminating potential matching records that fall below a predetermined threshold (lines 40-43 in col. 9 and lines 60-68 in col. 2). Wheatley discloses generating proper names in the database to a number of phonetic feature representations (lines 44-60 in col. 8). Wheatley does not explicitly disclose processing the records remaining after the eliminating step. However, Wheatley discloses a pattern matching and a selection of matching records for the input proper name (abstract). Therefore, based on Wheatley, it would have been obvious to one having ordinary skill in the art at the time the invention was made to process records after the eliminating step in order to find closer matching records for the input proper name.

6. Claims 8, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley et al. (U.S. Patent No. 5,212,730) in view of Hermansen ("Automatic Name Searching in Large Data Bases of International Names," 1985, described in lines 6-10 on page 5 in the specification).

With respect to claim 8, Wheatley discloses the claimed subject matter as discussed above except processing records after an eliminating step with an algorithm. Hermansen discloses searching names using algorithms. Therefore, based on Wheatley in view of Hermansen, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the algorithms of Hermansen to the system of Wheatley in order to find closer and more accurate matching records for an input proper name.

With respect to claims 10, and 16, Wheatley discloses the claimed subject matter as discussed above except a further step of processing based on an algorithm of likely ethnic origin for an input proper name. Hermansen discloses searching using different culturally specific algorithms (line 9 on page 5 in the specification). Therefore, based on Wheatley in view of Hermansen, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize culturally specific algorithms of Hermansen to the system of Wheatley in order to have more precise phonetic representations for comparison, thus closer matching records for the input proper name can be obtained or resulted.

7. Claims 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley et al. (U.S. Patent No. 5,212,730) in view of Lutz ("The Use of Phonological Information in Automatic Name Searching, March 25, 1997, described in Appendix F in the specification).

With respect to claims 9, and 15, Wheatley discloses the claimed subject matter as discussed above except a phonetic representation in International Phonetic Alphabet

(IPA). Wheatley further discloses that other pronunciation representation could be used (lines 21-25 in col. 4) for a phonetic representation. Lutz discloses an automatic name searching using IPA (Section 5.0 on pages 6-7 in Appendix F) for representing pronunciation effectively. Therefore, based on Wheatley in view of Lutz, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a phonetic representation in IPA for the effective pronunciation representation.

8. Claims 11-12, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley in view of Hermansen as applied to claim 10 above, and further in view of PC-NAS (the applicants' admitted prior art that is known more than one year before the priority date of this application, 09/275,766, in lines 11-17 on page 5).

With respect to claims 11-12, and 17-18, Wheatley and Hermansen disclose the claimed subject matter as discussed above except comparing and ignoring different portions of pronunciation equivalent phonetic alphabet representation of an input proper name. However, PC-NAS discloses name searching using a combination of n-gram and positional properties and a limited name regularization algorithm (lines 13-16 on page 5 in the specification). This teaches comparing and ignoring portions of phonetic representation in comparison for the name searching. Therefore, based on Wheatley in view of Hermansen, and further in view of PC-NAS, it would have been obvious to one having ordinary skill in the art at the time the invention was made to compare and ignore portions of phonetic representation of the input proper name for effective phonetic representation comparison.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hermansen ("Automatic Name Searching in Large Data Bases of International Names," 1985, described in lines 6-10 on page 5 in the specification).

With respect to claim 19, Hermansen discloses databases containing international names and searching a (proper) name using different culturally specific algorithms. This teaches identifying an input name (surname and given name) in order to determine the cultural origin or ethnicity of the inputted proper name, so that a search strategy (culturally specific algorithms) may be selected. This further teaches a searching including comparisons of the input name and names in the databases. In the specification, Hermansen does not explicitly disclose selecting a set of names that are stored in the databases based on a culture-relevant key-indexing strategy. However, based on Hermansen, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select a set of names in the databases based on the determined cultural origin of the input name in order to search matching names efficiently and effectively.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1, 4, 7, 10, and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the same entity" in 9th and 11th line of claim 1. There is insufficient antecedent basis for this limitation in the claim. Furthermore, the applicants are requested to specify clearly what "entity" is in the claim.

Claim 4 recites the limitation "said name" in 2nd line of claim 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitation "the entity" in 15th and 17th line of claim 7. There is insufficient antecedent basis for this limitation in the claim. Furthermore, the applicants are requested to specify clearly what "entity" is in the claim.

Claim 10 recites the limitation "said name" in 2nd line of claim 10. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the same entity" in 16th line of claim 13 and "the entity" in 20th line of claim 13. There is insufficient antecedent basis for this limitation in the claim. Furthermore, the applicants are requested to specify clearly what "entity" is in the claim.

Allowable Subject Matter

12. Claims 1-6 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claim 1 identifies the distinct feature, inputting two proper names, converting them to phonetic representations, comparing phonetic representations of two proper names, and determining a likelihood of two proper names. The closest prior art, Wheatley et al. (U.S. Patent No. 5,212,730) discloses inputting one name, converting

the name to a speech signal, comparing the signal to generated phonetic representations of names in the database, and determining the proper name for the input name, fails to suggest the claimed limitation as mentioned above. The invention is allowable over the prior art for being directed to a combination of claimed elements as indicated above.

Claims 2-6, dependent claims having further limitations from claim 1, are allowed with the same reason above.

Response to Arguments

13. Applicant's arguments filed 10/23/01 have been fully considered but they are not persuasive.

With respect to claims 7 and 13, the applicants argue that Wheatley does not teach a feature of constructing a first "pronunciation equivalent phonetic alphabet representation (PEPAR)" from a first proper name, constructing a second PEPAR from a second proper name, and comparing the first PEPAR to the second PEPAR. However, the examiner respectfully disagrees. First, Wheatley discloses a database (HMM recognition model database) containing generated phonetic sequences (phonetic representations) of names (lines 3-68 in col. 4). Second, Wheatley discloses an input name converted to a speech signal (lines 29-41 in col. 8). The speech signal is a generated phonetic representation of the input name. Thus, Wheatley does disclose generating a phonetic representation of the input name. Lastly, Wheatley discloses comparing the spoken name input (a phonetic representation of the input name) to

phonetic representations of names in the database (lines 44-47 in col. 8, lines 30-38 and lines 60-68 in col. 2, and lines 16-20 in col. 10). Therefore, the applicants' arguments are not persuasive.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

French et al. (Applications of approximate word matching in information retrieval, ACM, 1997, pages 9-15), Zobel et al. (Phonetic string matching: lessons from information retrieval, ACM, 1996, pages 166-172), and Marx et al. (Putting people first:

specifying proper names in speech interfaces, ACM, 1994, pages 29-37) disclose string, text, and name matching.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joon H. Hwang whose telephone number is 703-305-6469. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on 703-305-4393. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5397 for regular communications and 703-308-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Joon Hwang
January 11, 2002

KIM VU
SUPERVISORY PATENT EXAMINER
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